Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendments, claims 7 and 24-67 are pending in the application, with claims 24, 36, 47, and 57 being the independent claims, and claim 7 being withdrawn from consideration. It is believed that the amendments to the claims will put the case in condition for allowance or in better condition for appeal. 37 C.F.R. § 1.116(a). Thus, it is respectfully requested that these amendments be entered.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Maintained Rejections Under 35 U.S.C. §§ 101 and 112, First Paragraph

At pages 3-6 of Paper No. 12, the Examiner rejects claims 24-67 under 35 U.S.C. § 101, because, in the Examiner's view, the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility. *See,* Paper No. 12, page 3. Applicants respectfully traverse this rejection.

The U.S.P.T.O. Utility Guidelines require that a claimed invention must possess either a well-established utility or an asserted utility that is specific, substantial and credible. M.P.E.P. § 2107.02 (Eighth edition, August 2001). If the claimed invention has a well-established utility that is specific, substantial and credible, utility exists for the invention and a utility rejection is improper. *See* M.P.E.P. § 2107 (II) at 2100-29 (Eighth edition, August 2001). If, however, Applicants have asserted a utility for the claimed invention in the

specification, the Examiner should determine whether any asserted utility is specific and substantial, and if so, whether such utility is credible to a person of ordinary skill in the art. *Id.*

Applicants further point out that they "need only make *one* credible assertion of specific utility for the claimed invention to satisfy 35 U.S.C. 101 and 35 U.S.C. 112; additional statements of utility, even if not 'credible,' do not render the claimed invention lacking in utility." M.P.E.P. § 2107.02 (I.) at 2100-37 (Eighth edition, August 2001) (emphasis added); *see also In re Gottlieb*, 140 USPQ 665, 668 (CCPA 1964). In fact, the Federal Circuit has indicated that

> [t]o meet the utility requirement, the Supreme Court has held that a new product or process must be shown to be "operable" - that is, it must be "capable of being used to effect the object proposed." Our cases have not, however, interpreted this language . . . to mean that a patented device must accomplish *all* objectives stated in the specification. On the contrary, "[w]hen a properly claimed invention meets at least one stated objective, utility under § 101 is clearly shown."

Carl Zeiss Stiftung v. Renishaw PLC, 20 USPQ2d 1094, 1100 (Fed. Cir. 1991) (citations omitted) (quoting *Raytheon Co. v. Roper Corp.*, 220 USPQ 592, 598 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 835 (1984)).

Finally, the Examiner has the initial burden of challenging an Applicant's presumptively correct assertion of utility in the disclosure. *See, In re Brana*, 51 F.3d 1560, 1566 (Fed. Cir. 1995). To meet that burden, the Examiner must provide evidence showing that one of ordinary skill in the art would reasonably doubt the asserted utility. *See, id.* Only after the Examiner has provided such evidence does the burden shift to the Applicant to provide rebuttal evidence "sufficient to convince [a person skilled in the art] of the invention's asserted utility." *Id.*

Applicants respectfully maintain that the Examiner has not met the initial burden of demonstrating that a person of ordinary skill in the art would reasonably doubt Applicants' assertions of utility for the currently claimed invention.

Applicants incorporate by reference their response filed February 24, 2003, and will address certain points of rebuttal raised by the Examiner in Paper No. 12.

In response to their citation of CTGF-3 expression data and structural information found in the specification, the Examiner contends that the artisan is required to perform further experimentation on the claimed material in order to determine what "use" any expression or structural information could be put. Paper No. 12, page 3, lines 10-16. Applicants wish to clarify that their prior reference to the expression data and structural information found in the specification was intended to respond to and rebut the Examiner's statement in Paper No. 8 that "there is no description of the chemical, physical, or biological properties for the protein other than the sequence. The disclosed utilities associated with the claimed protein are based upon its homology with CTGF-1." Paper No. 8, page 5, lines 1-5. That is, Applicants disagreed with the Examiner's assertion that Applicants have not disclosed any properties for the protein other than its nucleotide and amino acid sequence and were merely providing support for their position.

Regarding the issue of homology with CTGF-1, the Examiner maintains that Henikoff *et al.* "teaches that shared modules in proteins are to be used as guides for further research." Paper No. 12, page 3. The Examiner goes on to state that the "specification fails to correlate a specific function of CTGF-3 with any given module of CTGF-3, or even with the entire protein" and that "utilities that require or constitute carrying out further research

to identify or reasonably confirm a 'real world' context of use are not substantial utilities." *See*, Paper No. 12, pages 3-4. Applicants respectfully disagree.

As discussed in detail in the prior Response and summarized below, Applicants have in fact asserted specific and substantial utilities for the CTGF-3 protein.

For example, Applicants have asserted that the claimed invention is useful in the diagnosis and prognosis of various connective tissue related disorders where there is significantly altered expression of CTGF-3. *See,* Specification, page 30, lines 21-26. Within the specification, examples of conditions caused by, associated with, or characterized by an over- or under- growth of connective tissue cells are set forth, including cancer, arthritis, fibrosis, atherosclerosis, and osteoporosis. *See,* Specification, page 30, line 26, to page 31, line 2. At page 4, lines 12-17, of Paper No. 12, however, the Examiner states that these paragraphs in the specification do not indicate whether CTGF-3 protein and mRNA is under- or over-expressed in cancer. *Id.*

In response, Applicants respectfully submit that the paragraph bridging pages 30-31 of the specification was intended to be an introductory paragraph to a more specific discussion regarding: 1) conditions where CTGF-3 is overexpressed; and 2) conditions where CTGF-3 is underexpressed.

For example, page 31, lines 3-7, of the specification teaches that *enhanced* levels of CTGF-3 can be detected in body fluids or tissues from mammals with *cancer*, fibrosis, arthritis, or atherosclerosis.

In particular, the specification states:

> Thus, the invention provides a diagnostic method useful during diagnosis of connective-tissue related disorders, such as cancer, fibrosis, arthritis, or artherosclerosis, which involves assaying the expression level of the gene encoding

> the connective tissue growth factor-3 protein in mammalian cells or body fluid and comparing the gene expression level with a standard connective tissue growth factor-3 gene expression level, whereby an increase in the gene expression level over the standard is indicative of these diseases.

Emphases added. Specification, page 31, lines 7-13.

Immediately following that discussion, the specification then turned to a more particular disclosure on the diagnosis of diseases, such as *osteoporosis*, whereby a decrease in CTGF-3 gene expression over the standard was indicative of that disease.

The utility of the claimed invention for the detection of cancer, in particular, was also asserted in the specification at page 32, lines 25-29: "The present invention is useful for detecting cancer in mammals. In particular, the invention is useful during diagnosis of the following types of cancers in mammals: *breast*, ovarian, cervical, prostate, bone, liver, lung, pancreatic, and splenic."

Thus, contrary to the Examiner's statement at page 4, lines 20-21, and page 5, lines 3-5, of Paper No. 12, that the above two excerpts from the specification are "not a specific disclosure that an increase in the CTGF-3 gene expression level over the standard is indicative of breast cancer," Applicants submit that this is not the case, when both of these paragraphs are considered. That is, the paragraph on page 31 states that an increase in CTGF-3 gene expression is useful in the diagnosis of cancer; the paragraph on page 32 states that breast cancer is one type of cancer that may be diagnosed. Accordingly, contrary to the Examiner's statement, documents AR15, AS14, AS15, and AT14, which were discussed in detail in the last Response, clearly support Applicants' asserted utility of CTGF-3 in the diagnosis of cancer, and breast cancer, specifically.

Regarding the Examiner's comment that document AR7 contravened the specification's assertion that the invention provides a diagnostic method useful during diagnosis of cancer (since WISP-2 mRNA expression was reduced in colon tumors), Applicants note that colon tumors were not listed on page 32, lines 25-28, as one of the types of tumors that could be detected [by an increase in expression of CTGF-3, as stated on page 31, lines 7-13].

Thus, in view of the above remarks, Applicants strongly disagree with the Examiner's comment in Paper No. 12 that "the disclosure is such that Applicant can hopefully claim utility regardless of any particular under-or over-expression of CTGF-3 associated with any particular disorder or cancer, while at the same time disclosing nothing regarding the particular expression of CGF-3 associated with a particular disease or disorder." Paper No. 12, page 5, lines 11-15.

It is evident that Applicants have specifically asserted utilities for the claimed invention relating to the detection, prognosis, and treatment of a variety of connective-tissue related disorders associated with an excess or deficiency of CTGF-3 activity. Breast cancer is a CTGF-3-related disorder that is explicitly named (Specification, page 32, lines 25-28) as being diagnosed by an increase in CTGF-3 gene expression (Specification, page 31, lines 3-13). Indeed, as discussed in detail in the prior Response, published experimental results by other groups support the asserted role of CTGF-3 in breast cancer diagnosis and therapy.

Regarding the specificity of an asserted use, Applicants note that the Utility Guidelines define "specific utility" as a utility that

> is *specific* to the subject matter claimed. This contrasts with a *general* utility that would be applicable to the broad class of the invention. . . . A general statement of diagnostic utility, such as diagnosing an unspecified disease, would ordinarily

> be insufficient absent a disclosure of what condition can be diagnosed.

M.P.E.P. § 2107.01 (I.) at 2100-32 (Eighth edition, August 2001).

Applicants assert that the specification does not provide "[a] general statement of diagnostic utility, such as diagnosing an unspecified disease." Rather, in view of Applicants' assertions in the specification that CTGF-3 is useful in the diagnoses of breast cancer, coupled with the fact that the CTGF-3 gene was consistently found to be overexpressed in human breast cancer cells (thus confirming and supporting Applicants' assertions), Applicants submit that the claimed invention possesses diagnostic and/or prognostic utility in a specified disease state, *i.e.*, cancer, such as breast cancer. Accordingly, since there is "a disclosure of what condition can be diagnosed," it follows that the statement of diagnostic/prognostic utility is clearly sufficient under the Utility Guidelines.

Applicants also note that the Utility Guidelines define "substantial utility" as a utility that

> defines a "real world" use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use are not substantial utilities . . . An assay that measures the presence of a material which has a stated correlation to a predisposition to the onset of a particular disease condition would also define a "real world" context of use in identifying potential candidates for preventive measures or further monitoring.

M.P.E.P. § 2107.01 (I.) at 2100-32 (Eighth edition, August 2001).

As noted above, Applicants have asserted that CTGF-3 can be overexpressed in cancer (Specification, page 31, lines 3-13), and have disclosed assays which measure the presence of CTGF-3 in a biological sample (Specification, page 32, line 1, to page 36, line 16). Thus, not only would such assays have utility in diagnosing cancer, but also in further

monitoring clinical outcome, *i.e.*, in prognosis. Clearly, these are substantial "real world" utilities. Thus, similar to the "specific" prong, Applicants' asserted utility therefore clearly satisfies the "substantial" prong of the Utility Guidelines.

Regarding the credibility of an asserted utility, the Utility Guidelines provide as follows:

> Where an applicant has specifically asserted that an invention has particular utility, that assertion cannot simply be dismissed by Office personnel as being "wrong," even when there may be reason to believe that the assertion is not entirely accurate. Rather, Office personnel must determine if the assertion of utility is credible (i.e., whether the assertion of utility is believable to a person of ordinary skill in the art based on the totality of evidence and reasoning provided).

M.P.E.P. § 2107.02 (III.)(B.) at 2100-40 (Eighth edition, August 2001). In other words, the Examiner "must provide evidence sufficient to show that the statement of asserted utility would be considered 'false' by a person of ordinary skill in the art." M.P.E.P. § 2107.02 (III.)(A.) at 2100-40 (Eighth edition, August 2001). Applicants respectfully submit that the Examiner has not met this burden.

Applicants re-emphasize that they need only make *one* credible assertion of specific utility for the claimed invention to satisfy the utility requirements, and that once the claimed invention has been found to be useful for some purpose, it becomes unnecessary to decide whether it is in fact useful for the other purposes indicated in the specification as possibly useful. *See, Carl Zeiss Stiftung v. Renishaw plc*, 20 USPQ2d 1094, 1100 (Fed. Cir. 1991); *In re Gottlieb*, 140 USPQ 665, 668 (CCPA 1964); M.P.E.P. § 2107.02 (I.) at 2100-37 (Eighth edition, August 2001).

Applicants have asserted in the specification that the claimed invention can be used in the diagnosis, prognosis, or treatment of cancer, and have provided "evidence" in the form of art to substantiate these assertions and provide evidence as to the accuracy, *i.e.*, credibility, of these assertions. Thus, Applicants submit that the above assertions are not only specific and substantial, but credible as well, *i.e.*, the assertion is *at least believable* to, and would not be considered *false* by, a person of ordinary skill in the art. The Examiner has not provided any evidence showing that one of ordinary skill in the art would reasonably doubt these asserted utilities. Thus, a *prima facie* case of lack of utility has not been established.

In view of the above, Applicants assert that the utilities assigned to the claimed invention are specific, substantial and credible. Even assuming, *arguendo*, the Examiner had established a *prima facie* showing that the claimed invention lacks utility, Applicants respectfully submit that the numerous publications cited herewith (*i.e.*, the evidence of record) would be sufficient to lead one skilled in the art to conclude that the asserted utility would not be considered "false" by a person of ordinary skill in the art, and therefore sufficient to rebut the Examiner's showing. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection under 35 U.S.C. § 101.

At page 6 of Paper No. 12, the Examiner also maintains the rejection of claims 24-67 under 35 U.S.C. § 112, first paragraph. In the Examiner's opinion, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility... "one skilled in the art clearly would not know how to use the claimed invention." Paper No. 12, page 6, lines 13-17. Applicants respectfully traverse this rejection.

For the reasons discussed above in response to the rejection under 35 U.S.C. § 101, as well as the art cited therein, Applicants assert that the claimed invention complies with the current case law and is supported by a specific, substantial and credible utility as well. The Examiner "should not impose a 35 U.S.C. 112, first paragraph, rejection grounded on a 'lack of utility' basis unless a 35 U.S.C. 101 rejection is proper." M.P.E.P. § 2107.01 (IV.) at 2100-36 (Eighth edition, August 2001). Therefore, since the claimed invention complies with the utility requirement of 35 U.S.C. § 101, the rejection under 35 U.S.C. § 112, first paragraph, based on the alleged lack of utility of the claimed invention, should be withdrawn.

Maintained Rejection Under 35 U.S.C. § 112, Second Paragraph

At pages 6-7 of Paper No. 12, the Examiner maintains the rejection of claims 36-46 under 35 U.S.C. § 112, second paragraph, for indefiniteness concerning the term "mature." Applicants respectfully disagree and traverse this rejection.

Determining whether a claim is definite requires an analysis of "whether one skilled in the art would understand the bounds of the claim when read in light of the specification .... If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more." *Miles Lab., Inc. v. Shandon, Inc.*, 27 USPQ2d 1123, 1126 (Fed. Cir. 1993).

Applicants maintain that one skilled in the art of molecular biology and genome sequencing would clearly understand what is meant by the term "mature" protein, especially when the claims are read in light of the specification. The "mature" forms of the CTGF-3

protein of the invention are defined and discussed in the present specification at, for example, page 8, line 12, to page 10, line 5.

The specification and claim 36 relates to the mature forms of the CTGF-3 polypeptide encoded by the deposited cDNA clone, as commonly defined by the structure of its precursor, *i.e.*, the precursor amino acid sequences, which are processed to mature CTGF-3 that do not include amino acid residues such as a leader or secretory sequence of the precursor form.

The present specification describes that proteins secreted by mammalian cells have a leader sequence cleaved by the host cell to form the mature forms of the polypeptide. *See, e.g.*, specification, page 8, lines 13-16. In addition, the present specification states that "it has long been known that the cleavage specificity of a secreted protein is ultimately determined by the primary structure of the complete protein, that is, it is inherent in the amino acid sequence of the polypeptide." *Id.* at lines 19-22. The amino acid sequence is provided by Applicants in SEQ ID NO:2. More particularly, the specification states:

> By the mature connective tissue growth factor-3 protein having the amino acid sequence encoded by the cDNA clone contained in the host identified as ATCC Deposit 97756 is meant the mature form of the connective tissue growth factor-3 protein produced by expression in a mammalian cell (*e.g.*, COS cells, as described below) of the complete open reading frame encoded by the human DNA sequence of the clone contained in the vector in the deposited host.

Id. at page 8, line 26, to page 9, line 2.

Finally, in Example 3, the production of mature forms of CTGF-3 in various mammalian expression host cell systems is described (*e.g.*, human Hela 293 cells, H9 and Jurkat cells, mouse NIH3T3 and C127 cells, Cos 1, Cos 7 and CV1, quail QC1-3 cells, mouse L cells and Chinese hamster ovary (CHO) cells). *See, e.g.*, page 56, lines 20-22.

Thus, based on the definition and description of the term "mature [protein]" provided in the specification, coupled with the background knowledge of those skilled in the art, Applicants maintain that claims 36-46 are definite and fully satisfy the requirements of 35 U.S.C. § 112, second paragraph. Accordingly, it is respectfully requested that this rejection be reconsidered and withdrawn.

New Rejections Under 35 U.S.C. § 112, first paragraph

Enablement

At pages 7-8 of Paper No. 12, the Examiner rejects claims 57-67 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. More specifically, the Examiner states that since the family of connective-tissue cells include fat cells, and that, according to the Alberts reference cited by the Examiner, mature fat cells cannot divide, then the specification lacks guidance and working examples of a polypeptide that has mitogenic activity for a cell that cannot divide, and the skilled artisan is left to undue experimentation to make a polypeptide with the desired [mitogenic] activity. Applicants respectfully traverse this rejection.

At the outset, Applicants respectfully remind the Examiner that it is not a function of the claims to specifically exclude possible inoperable embodiments. *See, Atlas Powder Co. v. E.I. du Pont de Nemours & Co.*, 224 USPQ 409, 413 (Fed. Cir. 1984). Claims may encompass inoperative embodiments unless "the number of inoperative combinations

becomes significant, and in effect forces one of ordinary skill in the art to experiment unduly in order to practice the claimed invention . . . ." *Id.*

Given the high degree of skill in the art, one of ordinary skill in the art would be able to routinely determine by experimental assay which members of the genus are capable of mitogenic activity. The specification provides guidance in this regard at page 17, lines 2-5. In any event, claims 57-67 are not necessarily required to have mitogenic activity. Claim 57 is written with alternative functional language, *i.e.*, wherein said first polypeptide binds an antibody that specifically binds the polypeptide of SEQ ID NO:2. Accordingly, based on the above, it would not require undue experimentation for one skilled in the art to practice the claimed invention. Reconsideration and withdrawal of this rejection is respectfully requested.

In addition, at pages 8-9 of Paper No. 12, the Examiner rejects claims 57-67 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. More specifically, the Examiner states that:

> The claims are directed to or encompass antibodies specific for the polypeptide of SEQ ID NO:2 that also bind a polypeptide 95% or more identical to SEQ ID NO:2. The claims encompass antibodies that bind an epitope of SEQ ID NO:2 that also bind variant epitopes of SEQ ID NO:2. The specification lacks guidance for making, and working examples of, making such cross-reactive variant epitopes.

Paper No. 12, pages 8-9. Applicants respectfully traverse this rejection.

At the outset, Applicants remind the Examiner that claim 57, as amended herein, is directed to "An isolated nucleic acid molecule comprising a polynucleotide encoding a first

polypeptide 95% or more identical to a second polypeptide selected from the group consisting of:

(a) amino acid residues -19 to +231 of SEQ ID NO:2; and

(b) amino acid residues +1 to +231 of SEQ ID NO:2;

wherein said first polypeptide has mitogenic activity for connective tissue cells; or wherein said first polypeptide binds an antibody ~~having specificity for~~ that specifically binds the polypeptide of SEQ ID NO:2." That is, the claims are directed to an isolated nucleic acid molecule, *not* antibodies, *per se*.

Applicants respectfully submit that the one skilled in the art, in view of the teachings in the present specification, as well as the background knowledge of the skilled artisan, would be able to make and use the invention of claim 57. For example, page 24, line 20, to page 30, line 20, of the present specification, and the references cited therein, provide ample guidance on CTGF-3 antibody production, epitope-bearing polypeptides, immunogenic epitopes, and antigenic epitomes, such that one skilled in the art could practice the invention of claim 57 without undue experimentation. Reconsideration and withdrawal of this rejection is respectfully requested.

Written Description

At pages 9-10 of Paper No. 12, the Examiner rejects claims 57-67[1] under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner states that the claims contain subject matter which was not described in the

[1]The Office Action states claims 57-76, which is in error.

specification in such a way as to reasonable convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. More specifically, the Examiner contends that one skilled in the art would conclude that Applicants were not in possession of the genus of polypeptides mitogenic for connective tissue cells and that the disclosure of SEQ ID NO:2 fails to describe the genus. Applicants respectfully traverse this rejection.

To satisfy the written description requirement of 35 U.S.C. § 112, first paragraph, Applicants must convey with reasonable clarity to those skilled in the art that, as of the effective filing date, Applicants were in possession of the invention. *See Vas-Cath, Inc. v. Mahurkar*, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). As made clear by the Federal Circuit, "[t]he written description requirement does not require the applicant 'to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed.'" *Union Oil Co. of Cal. v. Atlantic Richfield Co.*, 54 USPQ2d 1227, 1232 (Fed. Cir. 2000). In addition, not all functional descriptions of genetic material necessarily fail to meet the written description requirement; rather, "the requirement may be satisfied if in the knowledge of the art the disclosed function is sufficiently correlated to a particular, known structure." *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 296 F.3d 1316, 1324 (Fed. Cir. 2002); *See also, Moba, B.V. v. Diamond Automation, Inc.*, 2003 U.S. App. LEXIS 6285 at 31-32 (Fed. Cir. 2003).

The claims are adequately described under the PTO's written description guidelines. According to the guidelines:

> [t]he written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by . . . disclosure of relevant, identifying characteristics, *i.e.*, [1] structure or other

> physical and/or chemical properties, [2] by functional characteristics . . . or [3] by a combination of such identifying characteristics.

Guidelines for Examination of Patent Applications Under the 35 U.S.C. § 112, ¶1, *"Written Description" Requirement*, 66 Fed. Reg. 1104, 1106 (Jan. 5, 2001) ("*Written Description Guidelines*").

Thus, the guidelines indicate that a representative species may be adequately described through its structure, through its functional characteristics, ***or*** through a combination of its structure and function.

Applicants assert that the polypeptides embodied in claim 57 are described by both a structural definition (related to the amino acid sequence of SEQ ID NO:2) and a functional characteristic (mitogenic activity). Recitation of the primary structure of the polypeptide and the functional test defines a genus and indicates possession of the genus to a person of ordinary skill in the art. Further, procedures for isolating nucleic acid molecules that are at least 95% homologous to SEQ ID NO:2 are described in the specification and were well-known in the art. (*See, e.g.*, specification at pages 24-25). Finally, assays are described in the specification for determining whether a DNA molecule encodes a protein having mitogenic activity for connective tissue cells. *See,* specification at page 17, lines 2-5.

Based on the above, persons of ordinary skill in the art would have recognized that Applicants had possession of the invention of claim 57. Applicants therefore respectfully request that the written description rejection of claims 57-67 be reconsidered and withdrawn.

Also at pages 10-11 of Paper No. 12, the Examiner rejects claims 57-67[2] under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

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[2]Again, the Office Action states claims 57-76, which is in error.

The Examiner states that the claims contain subject matter which was not described in the specification in such a way as to reasonable convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention.

More specifically, the Examiner contends that "an antibody that is specific for SEQ ID NO:2" is insufficient to describe the genus, that one skilled in the art would conclude that the disclosure fails to provide a representative number of species to describe the genus, and that Applicants were not in possession of the claimed genus. Applicants respectfully traverse this rejection.

Claim 57 is adequately described under the PTO's written description guidelines, as set forth above. That is, the guidelines indicate that a representative species may be adequately described through its structure, through its functional characteristics, ***or*** through a combination of its structure and function. Applicants assert that the polypeptides embodied in claim 57 are described by both a structure (related to an amino acid sequence) and a functional characteristic (binding to an antibody). Recitation of the primary structure of the polypeptide and the functional test defines a genus and indicates possession of the genus.

Applicants assert that the new claims fully meet the written description requirements of 35 U.S.C. § 112, first paragraph under the test set out in the PTO's *Written Description Guidelines*. Moreover, Applicants assert that the specification conveys with reasonable clarity that Applicants were in possession of the claimed invention and that the claims are fully supported by the specification. Finally, Applicants respectfully assert that the Examiner has failed to meet the required burden in presenting evidence or reasons why those skilled in the art would not recognize the claimed invention from the disclosure. For all of

the above reasons, Applicants assert that the written description requirements have been met and that the Examiner's rejection is overcome. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. 112, first paragraph, is respectfully requested.

New Rejection Under 35 U.S.C. § 112, Second Paragraph

At pages 11-12 of Paper No. 12, the Examiner rejects the claims under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite.

At page 11, lines 14-18, of Paper No. 12, the Examiner states that claims 37-39 are indefinite because they recite the term "said polynucleotide" or "the polynucleotide" and the antecedent basis for these limitation is unclear because there are three earlier recitations of "polynucleotide." While disagreeing with this rejection, it is believed that Applicants' amendments have rendered this rejection moot. Withdrawal thereof is respectfully requested.

At pages 11-12 of Paper No. 12, the Examiner rejects claims 57-67 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for reciting the term "having specificity for." The Examiner states that "because the specification does not identify that material element or combination of elements which is unique to, and therefore, definitive of 'having specificity for' an artisan cannot determine what additional or material limitations are placed upon a claim by the presence of this element. The metes and bounds are not clearly set forth." *Id.* Applicants respectfully traverse this rejection.

Applicants respectfully submit that one skilled in the art of antibody preparation would clearly understand what is meant by an antibody "having specificity for" a particular

polypeptide, in this case, the polypeptide of SEQ ID NO:2. The above notwithstanding, Applicants have amended claim 57 in an effort to advance prosecution. It is respectfully requested that this ground of rejection be reconsidered and withdrawn.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all currently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Karen R. Markowicz
Agent for Applicants
Registration No. 36,351

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1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600